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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,536	10/27/2000	Gregory G. Davis	245/090	6545

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EXAMINER

TORRES, MARCOS L

ART UNIT	PAPER NUMBER
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2687

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/698,536

**Applicant(s)**

DAVIS ET AL.

**Examiner**

Marcos L Torres

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>08042004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 8-4-2004 have been fully considered but they are not persuasive.
2. Regarding applicants argument's, that there is no suggestion in the art to combine downlink and uplink location method, Lundqvist discloses that location can be on the mobile station (downlink) or in the base station (uplink) (see page 5, line 5 – page 11, line 4), thereby he discloses both method of location finding. Regarding the reliability argument, the reliability of the system would be enhanced because the system would be able to find mobile station equipped to find its location and the ones that are not. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine that teaching for reliability and compatibility reasons.
3. Regarding applicant's arguments, that there is no suggestion of using the same or at least two measurement units for both uplink and downlink, Lundqvist discloses using the same base stations for both uplink and downlink (see page 12, line 3 – page 13, line 23).
4. Regarding applicant's arguments, that Morris reference is directed to FEC; Morris discloses the common and well-known method of using a single processor for receiving and transmitting in a base station and a mobile station. Since both are in the same field on endeavor, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both references.

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5. Regarding applicant's argument's, that Hattey is directed to a repeater station, hattey discloses discrete processor in a wireless communication system station. Since both are in the same field on endeavor, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both references.

6. Regarding applicant's argument's, that there is no suggestion in the art that more than one system be supported at the same time, that limitation is not disclosed in the claim.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 18-20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundqvist (WO 99/49691).

As to claims 18-20 and 24, Lundqvist discloses a method of locating mobile devices, the method comprising: measuring times of arrival of an uplink signal from a

first mobile device at each of at least three measurement units; computing a location of the first mobile device based on the measured times of arrival of the uplink signal; measuring at the at least three measurement units times of arrival of downlink signals from each of at least three base stations; receiving time of arrival measurements of the downlink signals from a second mobile device; and computing a location of the second mobile device based on the measured times of arrival of the downlink signals and the received time of arrival measurements from the second mobile device (see page 5, line 5 – page 11, line 4). Lundqvist does not specifically disclose determining times of arrival of a signal that originated from the mobile device at each of at least two measurement units. However, the admitted prior art shows determining times of arrival of a signal that originated from the mobile device at each of at least two measurement units (see fig. 2, page 2, line 23 – page 3, line 12). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both teachings for enhanced compatibility.

As to claim 24, Lundqvist discloses a method of locating a mobile device, the method comprising: determining at each of at least two measurement units times of arrival of an uplink signal from the mobile device, determining at the at least two measurement units times of arrival of downlink signals from each of at least two base stations, receiving from the mobile device time of arrival determinations for the downlink signals from the at least two base stations, and computing a location of the mobile device based on the determined times of arrival (see page 5, line 5 – page 11, line 4). Lundqvist does not specifically disclose determining times of arrival of a signal that

originated from the mobile device at each of at least two measurement units. However, the admitted prior art shows determining times of arrival of a signal that originated from the mobile device at each of at least two measurement units (see fig. 2, page 2, line 23 – page 3, line 12). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both teachings for enhanced compatibility.

10. Claims 21 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundqvist (WO 99/49691) as applied to claims 18-20 and 24 above, and further in view of Fox (U.S. Patent 6,408,246).

As to claims 21 and 28, Lundvist discloses everything claimed as explained above except for the method wherein the computing step comprises the steps of: defining a first and second hyperbolas based on the times of arrival determined in the previous steps and locating an intersection of the first hyperbola and the second hyperbola. Fox discloses the method wherein the computing step comprises the steps of: defining a first and second hyperbolas based on the times of arrival determined in the previous steps and locating an intersection of the first hyperbola and the second hyperbola (see col. 1, lines 37-50). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both teachings for the simple reason of enhanced precision.

As to claims 25-27, Lundvist discloses everything claimed as explained above except for the method further comprising sending the determined times of arrival to a mobile location center and wherein computing a location comprises computing a location at the mobile location center, wherein receiving the time of arrival

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determinations from the mobile device comprises receiving the time of arrival determinations from the mobile device at the mobile location center, wherein computing a location of the mobile device comprises implementing an uplink location algorithm and implementing a downlink location algorithm. In an analogous art, Fox discloses the method further comprising sending the determined times of arrival to a mobile location center and wherein computing a location comprises computing a location at the mobile location center, wherein receiving the time of arrival determinations from the mobile device comprises receiving the time of arrival determinations from the mobile device at the mobile location center, wherein computing a location of the mobile device comprises implementing an uplink location algorithm and implementing a downlink location algorithm (see col. 9, lines 1-25). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine these teachings for enhanced performance.

11. Claims 22-23 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundqvist (WO 99/49691) as applied to claims 18-20 and 24 above, and further in view of Fox (U.S. Patent 6,408,246) and Larsson (6522887).

As to claims 22-23 and 29-30, Lundqvist discloses everything claimed as explained above except for the apparatus wherein the first signal comprises a random access channel (RACH) signal, and the second signal comprises a broadcast control channel (BCCH) signal. Fox discloses for the apparatus wherein the first signal comprises a random access channel (RACH) signal (see col. 1, lines 21-35). Larsson discloses the second signal comprises a broadcast control channel (BCCH) signal (see

col. 7, lines 24-44). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both teachings for the simple reason of enhanced precision.

12. Claims 31-32 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (U.S. Patent 6,408,246) in view of Morris (U.S. Patent US006314535B1).

As to claims 31-32, Fox discloses a system for determining the location of a mobile device comprising: to implement an uplink location algorithm; at least three base stations, located at known locations, to communicate with the mobile device; and at least three measurement units, having an uplink mode and a downlink mode, wherein, in the uplink mode, each of the measurement units determines a time of arrival of an uplink signal that originated from the mobile device and reports the determined time of arrival to the uplink processor, and the uplink processor determines the location of the mobile device using the uplink location algorithm based on the times of arrival reported to the uplink processor by the measurement units, to implement a downlink location algorithm; in the downlink mode, the mobile device determines times of arrival of downlink signals arriving from each of the at least three base stations and reports the determined times of arrival to the downlink processor, the measurement units collectively determine a time of arrival of downlink signals that originated from each of the at least three base stations and report the determined times of arrival to the downlink processor, and the downlink processor determines the location of the mobile device using the downlink location algorithm based on the times of arrival reported to the downlink processor by the mobile device and by the measurement units (see col. 3,



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line 41 – col.9, line 24). Fox does not specifically disclose a processor. Morris discloses the system wherein the uplink processor and the downlink processor are implemented in an integrated device (see col. 8, lines 11-54). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both teachings for reducing the size and having a space efficient system.

Regarding claim 38 is the corresponding apparatus claims of system claim 31. Therefore, claim 38 is rejected for the same reason shown above.

13. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fox in view Morris (U.S. Patent US006314535B1) as applied to claims 31-32 and 38 above, and further in view of Hattey (U.S. Patent US005408680A).

As to claim 33, Fox and Morris disclose everything claimed as explained above except for the wherein the uplink processor and the downlink processor are implemented in discrete devices. Hattey discloses the wherein the uplink processor and the downlink processor are implemented in discrete devices (see col. 6, lines 24-50). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both teachings for an easy upgradeable system.

14. Claims 34-35 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (U.S. Patent 6,408,246) in view Morris (U.S. Patent US006314535B1) as applied to claims 31-32 and 38 above, and further in view of Bartholomew (U.S. Patent US005818385A).

As to claims 34-35, Fox discloses everything claimed as explained above except for the system wherein each of the measurement units include a downlink receiver that

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is distinct from the uplink receiver. In an analogous art, Bartholomew discloses the system wherein each of the measurement units includes a downlink receiver that is distinct from the uplink receiver and a dual mode uplink/downlink receiver (see col. 45, lines 40-49), thereby allowing to receive multiple channel. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching for enhancing the compatibility and reliability of the system.

Regarding claim 39 is the corresponding apparatus claims of system claim 35. Therefore, claim 39 is rejected for the same reason shown above.

15. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (U.S. Patent 6,408,246) in view Morris (U.S. Patent US006314535B1) as applied to claims 31-32 and 38 above, and further in view of Stilp (U.S. Patent US006184829B1).

As to claims 36-37, Fox discloses everything claimed as explained above except for the system wherein the at least two different communication protocols includes time division multiple access (TDMA) and global system for mobile communication (GSM) systems. In an analogous art, Stilp discloses the apparatus wherein the first communication protocol is time division multiple access (TDMA) and the second communication protocol is global system for mobile communication (GSM) (see col. 15, line 55 – col. 10, line 52), thereby allowing receiving several systems signals. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine these for enhanced precision, reliability and compatibility.

16. Claims 40 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (U.S. Patent 6,408,246) in view Morris (U.S. Patent US006314535B1) and

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further in view of Bartholomew (U.S. Patent US005818385A) as applied to claims 34-35 and 39 above, and further in view of Mros (U.S. Patent US006032209A).

As to claim 40, Fox, Morris and Bartholomew disclose everything claimed as explained above except for the apparatus wherein the uplink circuit card and the downlink circuit card are plugged into a common back plane. In an analogous art, Mros discloses an apparatus comprising: a common back plane; a first receiver being on a first circuit card, the first circuit card being plugged into the common back plane and a second card plugged to the back plane (see col. 2, lines 19-60), thereby permitting to install, change and upgrading the receiver. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching for easier operation.

As to claim 45, Fox discloses the apparatus further comprising receiving the time of arrival determinations from the mobile device comprises receiving the time of arrival determinations from the mobile device at the mobile location center and to implement a uplink location algorithm to receive the forwarded time of arrival of the downlink signal and to implement a downlink location algorithm (see col. 3, line 41 – col.9, line 24). Fox does not specifically disclose a processor. Morris discloses the system wherein the uplink processor and the downlink processor are implemented in an integrated device (see col. 8, lines 11-54). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine both teachings for reducing the size and having a space efficient system.

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17. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (U.S. Patent 6,408,246) in view Morris (U.S. Patent US006314535B1) in view of Bartholomew (U.S. Patent US005818385A) and further in view of Mros (U.S. Patent US006032209A) as applied to claims 40 and 45 above, and further in view of Pecone (U.S. Patent US006263391B1).

As to claim 41, Mros discloses a control signal coupled into the common back plane to control the uplink circuit card and the downlink circuit card (see col. 3, lines 44-67). Mros does not specifically disclose that the controller is plugged. Pecone discloses the apparatus further comprising a controller plugged to the back plane (see col. 2, lines 23-25), thereby making the system modular. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to add this teaching for the simple purpose of an apparatus easy to interchange.

18. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (U.S. Patent 6,408,246) in view Morris (U.S. Patent US006314535B1) in view of Bartholomew (U.S. Patent US005818385A) and further in view of Mros (U.S. Patent US006032209A) as applied to claims 40 and 45 above, and further in view of Larsson (U.S. Patent US006522887B2).

As to claim 42, Fox discloses for the apparatus wherein the first signal comprises a random access channel (RACH) signal (see col. 1, lines 21-35). Fox does not specifically disclose the second signal comprises a broadcast control channel (BCCH) signal. In an analogous art, Larsson discloses the second signal comprises a broadcast control channel (BCCH) signal (see col. 7, lines 24-44). Therefore, it would have been

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obvious to one of the ordinary skill in the art at the time of the invention to combine both teachings for the simple reason of enhanced precision and compatibility.

19. Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (U.S. Patent 6,408,246) in view Morris (U.S. Patent US006314535B1) in view of Bartholomew (U.S. Patent US005818385A) and further in view of Mros (U.S. Patent US006032209A) as applied to claims 40 and 45 above, and further in view of Stilp (U.S. Patent US006184829B1).

As to claims 43-44, Fox discloses everything claimed as explained above except for the apparatus wherein the at least two different communication protocols includes time division multiple access (TDMA) and global system for mobile communication (GSM) systems. In an analogous art, Stilp discloses the apparatus wherein the first communication protocol is time division multiple access (TDMA) and the second communication protocol is global system for mobile communication (GSM) (see col. 15, line 55 – col. 10, line 52), thereby allowing receiving several systems signals. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to combine these for enhanced precision, reliability and compatibility.

### ***Conclusion***

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcos L Torres whose telephone number is 703-305-1478. The examiner can normally be reached on 8:00am-5:30pm alt. Wednesday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G Kincaid can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marcos L Torres  
Examiner  
Art Unit 2687

mlt



**SONNY TRINH**  
**PRIMARY EXAMINER**